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PRELIMINARY REPORT

to

THE HONOURABLE NEIL CRAWFORD
MINISTER OF HEALTH AND SOCIAL DEVELOPMENT
PROVINCE OF ALBERTA

RE.

THE TASK FORCE ON
HIGHWAY ACCIDENTS AND SUICIDES

September 25, 1974

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MINISTER OF HEALTH AND SOCIAL DEVELOPMENT
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Dear Mr. Minister:

The Task Force on Highway Accidents and Suicides consists of the following members:

Mr. C. Cunningham	Dr. M. Boldt - Vice-Chairman
Ms. A. Currie	Dr. W.C. MacKenzie - Chairman
Ms. C. Heath	Mr. D.D. Kuchinski - Ad Hoc Member
Dr. D.K. Miyauchi	Mr. J. McFadzen - Ad Hoc Member
Mr. H.A. Swanson	Mr. R.L. Piepenburg - Ad Hoc Member
Mrs. L. Taylor	Dr. E.S.O. Smith - Ad Hoc Member

This Task Force met initially on April 5th, 1974, when you were kind enough to assure us of your support in the overall objectives of our group and did not place any definite time limit to the Study. The Task Force has met on two subsequent occasions and, after considerable discussion, felt that 12 to 18 months should be considered an appropriate study period if all went well.

Mrs. Gerda Bako and Ms. Elizabeth Blake had been appointed as research associates; Mrs. Bako in the area of Highways and Ms. Blake in the area of Suicides.

Dr. Alan Gilbert of Edmonton agreed to act as a Consultant in the area of alcohol involvement with driving. Dr. Alan Finley of Calgary has accepted a similar responsibility in the area of Ambulance and Emergency Care.

It became obvious that the magnitude and complexity of our field of study was so large that the objectives of the Study would have to be carefully defined.

Under the first term of reference given to us, that is -

"to collect, assess and review information and data from any source pertaining to the incidence, causes and sequelae of motor vehicle accidents and suicides",

our activities have been as follows:

1. We have assembled a collection of the world literature in our areas of interest and have accumulated a very large number of reference articles in both fields.

2. The research associates have collected data from the files of the Chief Coroner of Alberta, in the fields of suicides and highway accidents. The collection of these data is very difficult and time consuming and has not been completed as yet, but it will help us to make recommendations that should be meaningful and useful to this Province. Study of such data should help to recognize priority factors involved in fatalities and permanent disability resulting in both areas.

3. The Task Force was represented and received reports from the following conferences and visits to appropriate facilities:-

   a. Scientific Conference on Traffic Safety, Ottawa, May 23rd and 24th, 1974.

   b. The 6th International Conference on Alcohol, Drugs and Traffic Safety, Toronto, Ontario, September 8th to 13th, 1974.

   c. Visit to the Suicide Prevention Centre, an institute for studies of self-destructive behaviour in Los Angeles, California.

d. Visit to the Community Centre in
Winnipeg, Manitoba,
which is concerned with suicide prevention measures.

e. Annual Conference of the American Association of
Automotive Medicine
Toronto, Ontario, September 12th to 14th, 1974.

f. Conference of the Four Western Provinces in Canada,
concerned with ambulance and emergency care,
Summer of 1974.

g. Visit and consultation with Dr. Sainsbury
international authority on suicides,
during his visit to Calgary, Summer, 1974.

h. Visit to "COMPASS" Suicide Prevention Centre
Seattle, Washington.

i. Visit and consultation with Dr. Paul Whitehead,
London, Ontario,
national authority in the area of self injury.

In considering the second term of reference of the Task Force, that is,

> "To carry out such research as appropriate to support any recommendations",

it was the opinion of the group that a broad program of research was not feasible because of the limitation of time and money. However, the subject of drugs and alcohol is of such vital importance that we elected to support a project which should be of importance to our objectives and which can be completed in time to influence our recommendations. Through the good offices of the Traffic Injury Research Foundation of Canada, we have been provided with a National Research Council "stressalyser" and,

under the direction of Dr. J.A.L. Gilbert, a project has been designed which will:

1. Determine the effect of alcohol and various prescription drugs on simulated driving ability, when given alone or in combination.

2. Determine if the effect of the combination of alcohol and drugs is equal to the sum of the two, or if there is a synergistic effect.

A preliminary report presented to the Task Force on Thursday, September 19th, was extremely interesting and indicated that the Study may be very helpful to us as background information in preparing our eventual recommendations.

With reference to the third term of reference of the Task Force, that is,

> "To seek views and opinions of individuals and organizations regarding problems and proposals pertaining to accidents and suicides",

we realized that it was never intended that public hearings should be held by the Task Force, but we have actively solicited and encouraged written and verbal submissions from groups and individuals.

Many individuals and organizations deeply concerned with our areas of interest have presented written briefs, including:-

1. The Officer in Charge of "K" Division Traffic, R.C.M.P., Inspector Collins

2. The Chief of Police in Lethbridge, Ralph D. Michelson

3. Dr. W. Cecil Brown, Educational Consultant to the Alberta Alcoholism and Drug Abuse Commission

4. City of Calgary Ambulance Service

5. The Alberta Motor Association, G.A. MacDonald, Executive Vice-President

6. Dr. W.R. Ghent, Professor of Surgery, Queen's University

7. Mr. Alan Smith, St. Albert, Alberta

8. Insurance Bureau of Canada, Alberta Office

9. Chairman of the Committee on Medical Aspects of Transport Accidents, Alberta Medical Association, Dr. W.A.J. Donald, F.R.C.S.(C),

10. Dr. J.D. Taylor, Toxicologist and Consultant to the R.C.M.P. Crime Laboratory

11. Director of Medical Services, Workers' Compensation Board, Dr. W. Francis Hall

12. The Alberta Motor Transport Association, Safety Co-ordinators

13. The Acting Chief Constable of the Edmonton City Police, Mr. H.I. Moore

14. The Alberta Medical Association, Dr. H.E. Harper, Executive Director

15. Dr. Paul Zelhardt, Professor of Psychology, University of Alberta

16. Mr. Eric C. Jenn, Wetaskiwin, Alberta

In addition, interviews have been held, primarily by the Chairman

but also by the Vice-Chairman and other members of the Task Force, with the following people:

1. Staff Sergeant Poss,
City of Edmonton Police

2. Mr. Richard Anthony,
the Alberta Alcohol and Drug Abuse Commission (AADAC)

3. Mr. Clifford Pope,
AADAC

4. Mr. John Parker,
AADAC

5. Mr. D. Galvin,
Chairman of "The Facility",
Calgary

6. Mr. T.E. Ward,
Chairman of the Insurance Exchange,
Calgary

7. Staff Sergeant Picton,
Crime Laboratory, R.C.M.P.

8. Mr. R.C. Crothers,
Director of Traffic and Safety,
Alberta Motor Association

9. Mr. R.A.S. Cooper,
Insurance Bureau of Canada

10. Chief Coroner
Dr. M. Cantor

11. Mr. John Colville,
Director, Division of Vital Statistics,
Alberta Department of Health and Social Development

12. Mr. B. Johnson
Alberta Motor Association

13. Mr. Robert J. Gray,
Safety Co-ordinator,
Alberta Motor Transport Association

14. Mr. L. Lacny,
Alberta Hospital Services Commission

15. Dr. Tom Nelson,
Chairman, Department of Psychology,
University of Alberta

16. Dr. B. Sinha,
Professor, Department of Psychology,
University of Alberta

17. Dr. Dewar,
Professor, Department of Psychology,
University of Calgary

18. Mr. Walter Coombs,
The Alberta Mental Health Association

19. Dr. John Bradley,
Chairman,
Alberta Hospital Services Commission

20. Dr. E.G. King,
Chairman, Critical Care Committee,
Alberta Hospital Services Commission

We have been notified that there are numerous other briefs to be submitted to the Task Force in the next several months;from the Highway Transport Committee of the Alberta Medical Association and the Mental Health Committee of the Alberta Medical Association, from the Alberta Transport Association, from the Alcohol and Drug Abuse Commission, from the Canadian Mental Health Association, and from various other interested bodies.

In considering the collection of basic information referable to our problem, we felt that the National Roadside Survey which had been carried out in many Canadian Provinces might serve as an opportunity for providing uniform information across the country about just what the situation is on the highway, as far as alcohol involvement with driving is concerned. On our preliminary data obtained from the Coroner's reports, one can say with some degree of confidence, although our data have not been finalized, that alcohol and speed are both very, very important contributing factors in highway fatalities. With this in mind, we felt that anything we could do to co-operate with other Provinces, and with the Ministry of Transport, to obtain information about situations on the highway would be worthwhile, particularly if it did not represent any duplication of effort, and this could certainly be avoided by programming the National Roadside Survey and our own Check-Stop program in different areas.

It also occurred to us that the National Roadside Survey might serve as an evaluation and be complimentary and advantageous insofar as our own Check-Stop program is concerned. With this in mind we approached the Honourable Helen Hunley, Solicitor General of the Province of Alberta, and were delighted with her response and co-operation in making it possible for preliminary arrangements to be made for the National Roadside Survey to be carried out in Alberta in the fall of 1974.

From the foregoing, Mr. Minister, I am sure you will realize that we have embarked upon a study of great magnitude in a complex area.

Both Dr. Menno Boldt, who is the Vice-Chairman of the Task Force and Chairman of the Sub-Committee on Suicides, and I feel that in due time we will be able to provide you with recommendations which we hope may point the way to prevention in both areas of interest.

With reference to the fourth term of reference of our Task Force, that is,

> "To provide recommendations for consideration by the Minister of Health and Social Development intended to reduce the incidence of suicides and injury and death by motor vehicle accidents, including preventive Mental Health programs",

we have only one definitive recommendation to make at this time.

Research evidence from a wide range of studies in many countries proves that the wearing of safety belts is the most effective method currently available for the protection of car occupants against death and serious injury in traffic accidents. Despite this, safety belts often prove to be ineffective for a very simple reason -- the people they could have protected were not using them at the time their accident occurred.

The two main approaches to influencing voluntary use -- mechanical devices and public education campaigns -- have failed. Car owners and car dealers have found ways to bypass mechanical devices. Approximately 90 percent of the general public are aware of the safety value of safety belts but lack the motivation to wear them because they perceive the chances of an accident, particularly at low speeds and close to home, as being extremely remote.

If safety belts at the moment are the principal occupant restraints available (research has proven the air bag to be less effective and more costly), therefore legislation for compulsory usage seems to be the only way to significantly increase the wearing rate. Social and economic costs associated with motor vehicle accidents virtually prohibit any further laissez-faire attitudes by authorities in checking the road trauma epidemic.

Alberta should lead the rest of Canada in establishing safety belt usage laws. However, legislation requires a co-ordinated and concerned phase-in at both the local and provincial levels.

Any safety belt usage legislation must be preceded and accompanied by an appropriate public information campaign. The public must be informed of the extent of the traffic accident problem and why safety belts were chosen as one of the countermeasures. A public that understands the problem is much more likely to accept the remedy and a more favourable attitude towards wearing safety belts can be achieved. Such a campaign can also be aimed directly at the specific objections of particular groups in the community, as well as countering the number of deeply-felt misconceptions about the use of safety belts.

The legislation must have the support of all levels of police and enforcement personnel in order to develop and run an efficient enforcement program.

The support of community leaders and public interest groups should be lined up well in advance of any public release of the intent to legislate

safety belt usage. Such support can greatly influence community attitudes as to the reasonableness of the legislation.

Decisions must be made regarding the persons subject to the legislation and those who will be exempt; for example, pre-schoolers, the elderly, persons with certain types of medical conditions or abnormal skeletal structure, and so on.

Decisions must be made regarding the vehicles subject to the legislation and whether the requirements should apply at a date common to all persons or vehicles, or from different dates for different groups of persons or vehicles.

People must be educated on how to wear their safety belts properly and so improve the quality of wearing.

There is a need to up-grade or re-design currently available safety belt systems to improve both the convenience and comfort. More comprehensive systems are needed so that rear seat passengers will have access to lap and shoulder belts. <u>However, the use of the belts we have now, properly applied, will go a long way to reduce the toll of highway accidents.</u> *

The Task Force unreservedly recommends that this legislation should be introduced in the Province of Alberta, in the phased manner outlined in the foregoing paragraphs and supported by the Appendix "A", attached to this report. The results, we think, will speak for themselves.

In conclusion, Mr. Minister, it has become obvious to us that from age 5 to age 35, the principal cause of death is motor vehicle accidents; second most important cause is other accidents; and the third is suicide. In Canada in 1971, these three causes together accounted for 6200 of the 9700 deaths in the age group 5 to 35. Bagley, in England, showed that in 15 cities with Prevention Centres, the average suicide rate fell by 5.8 percent between one four-year period and the next, while in 15 controlled cities of comparable size, without Prevention Centres, the average rate rose by 19.84 percent. This certainly points to a high level of potential preventability.

Motor vehicle accidents result from an interaction between the driver, vehicle, and environment, and while the potential preventability might not be as high, as in suicide, certainly there are areas where change will be beneficial. We have already made one recommendation that we feel meets this requirement and it is in these areas that the Task Force will continue to concentrate their efforts.

Submitted for your information.

Respectfully yours,

W.C. MacKenzie, M.D.
Chairman,
Task Force on Highway Accidents
and Suicides.

Menno Boldt, Ph.D.,
Vice-Chairman,
Task Force on Highway Accidents
and Suicides.

APPENDUM

TASK FORCE ON ACCIDENTS AND SUICIDES

The last information from Australia relative to the success of seat belt legislation since its introduction in January 1971 indicates that "had the driver - passenger injury and fatality ratio ratio to fourwheel vehicle registrants, continued as it was in 1970 (the year prior to legislation) there would have been 28% more drivers and passengers killed in 1973 than in 1970 and there would have been 48% more drivers and passengers injured in 1973 than in 1970. The actual reductions in driver and passenger injuries in Victoria, Australia, were as follows:

DRIVERS AND PASSENGERS

Killed		Injured	
1970	745	1970	19,202
1973	627	1973	15,427
Reduced by 118		Reduced by 3,775	

The first eleven months of 1974 have shown reductions also: There were 75 passenger and 24 driver deaths less than for the same period in 1973; while the overall road total for the year as at the end of November was 122 less than the same period in 1973.

These figures were supplied by Mr. D. C. Gibb, who has the responsible for statistical followup since the legislation was enacted.

The Task Force is indebted to Dr. John Birrell, Police Surgeon in Melbourne, Australia, for his complete co-operation with our study.

December 11, 1974

APPENDIX A

SAFETY BELT--USAGE AND EFFECTIVENESS

Prepared for

THE TASK FORCE ON HIGHWAY ACCIDENTS AND SUICIDES

by

Don Keats

Sept. 1974

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INTRODUCTION

The purpose of this paper is to review the current information related to safety belts, particularly with respect to their effectiveness in reducing the number of motor vehicle deaths and mitigating the number of serious injuries received.

Information for the paper was collected from a variety of sources. Letters were written to several countries including Australia, Belgium, Czechoslovakia, France, Israel, Luxembourg, the Netherlands, New Zealand, Spain, the United States and West Germany. Each of these countries either has safety belt usage laws or is conducting feasibility studies on the enactment of such laws. Letters were sent to all Canadian provinces as well as to safety councils, consumer groups, automobile manufacturers, and many other groups throughout Canada and the United States. There was an extensive review of the literature related to the subject and interviews were held with various persons involved in traffic safety.

Australia is the only country to date that has documented convincing evidence of the effectiveness of safety belt usage. The other countries where safety belt usage is mandatory are still in the process of evaluating the effectiveness of such legislation. Consequently, much of the information in the paper relates to the Australian scene and one must be careful in translating the results of their studies to the Canadian situation, even though much of it is fairly applicable.

The paper is divided into six major sections.

Section I reviews the effectiveness of safety belts with particular emphasis on the actual experiences of Australia and New Zealand. Studies and research that have been conducted in Canada, Sweden and the United States are reviewed as well.

Section II briefly reviews some of the preventable costs associated with motor vehicle accidents.

Section III reviews the usage of safety belts on a widespread basis and looks at some of the reasons people give for not buckling up.

Section IV examines the two main approaches--mechanical devices and public education campaigns--to influencing voluntary usage of the safety belt.

Section V considers a third approach, that of safety belt usage laws. The acceptance and enforcement of such laws, as well as the infringement on individual rights and the convenience of present safety belt systems, is discussed.

Section VI relates to the present major alternative to the safety belt--the air bag.

This section is followed by the Summary and Conclusions of the paper.

THE EFFECTIVENESS OF WEARING SAFETY BELTS

The ultimate objective of a road safety measure is to reduce the occurrence of accidents and/or the extent of death and injury when an accident occurs. Consequently, the most valid criteria for evaluating the effectiveness of a measure is its effect on accidents or injuries.

Evidence from a considerable and rapidly growing body of research data and actual experience shows without exception that, properly worn, safety belts are indeed effective in reducing the number of fatalities and the severity of injuries resulting from traffic accidents. Much of the evidence detailed below is applicable to the Canadian scene.

Sweden

The value of the three-point safety harness was emphasized in a statistical analysis by AB Volvo of Sweden of 28,780 accidents involving 37,511 unbelted and belted front seat occupants.[1] In crashes in which the occupants were buckled up, 1 in 9 was injured to some extent, while 1 in 2,434 was killed. Where occupants were not buckled up at the time of the crash, 1 in 6 was injured and 1 in 244 was killed. Perhaps the most remarkable conclusion reached in the Volvo report was that none of the belted occupants was fatally injured at accident speeds of 60 miles per hour and under, and the average injury-reducing effect of the harness varied between 40 and 90 percent, depending on accident speed or type of injury. Non-belted occupants, on the other hand, sustained fatal injuries throughout the whole speed scale with several serious injuries

at speeds less than 12 miles per hour.

United States

Similar research illustrating the effectiveness of safety belts has been conducted throughout the United States.

At the University of North Carolina, researchers Levine and Campbell studied the effect of safety belts in reducing injuries to drivers.[2] They concluded that safety belts reduce serious injury by 43 percent overall, by 58 percent in the case of rear-end impacts, and by 49 - 54 percent in cases where the cars ran off the road. In frontal crashes, the most prevalent type of accident, safety belts reduced serious injuries by over 32 percent.

Federal tests conducted by the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA) have determined that 30 percent (between 16,000 and 17,000) of all those who died in highway accidents in 1972 would still be alive had they been using safety belts.[3] These studies showed the following degrees of risk involved for the unbelted versus the belted occupant.

Degree of Risk	Unbelted Driver
Instant death	30 times as high
Severe injury	9 times as high
Non-trivial injury	6 times as high
Any injury	4 times as high

In a paper presented to the 1973 Conference of the American Association of Automotive Medicine, Dr. Don Huelke and associates from the University of Michigan produced results from a study of 266 roll-over crashes involving some 377 front seat occupants.[4] Three out of ten unrestrained occupants were ejected during the roll-over crashes, half

of whom were killed. Twenty percent of the unrestrained occupants had critical or fatal injuries; only 6 percent of the belted occupants sustained critical or fatal injuries. More than two-thirds of those who were not ejected from their vehicles received only minor injuries or none at all.

A second study involving 177 fatalities in 139 accidents led Professor Huelke to conclude that 40 percent of all persons killed in automobile crashes in the United States would have been saved if they had been wearing lap belts, and an additional 13 percent would have been saved if shoulder harnesses had also been worn.[5]

Cornell Aeronautical Laboratories of Buffalo, New York examined accidents involving more than 14,000 people and found that the failure to use safety belts increased the likelihood of instant death or serious injury by 100 percent.[6]

The General Motors Environmental Activities staff reviewed 706 fatally injured occupants of 1967 - 1972 cars.[7] Fatalities were examined case by case in an attempt to assign the fatality reduction potential of restraining systems. Two of their results showed that:

1. if all fatalities had been wearing just the lap belts, 17 percent could have been saved
2. if both lap and shoulder belts had been worn, 31 percent could have been saved

Studies by another researcher, J. K. Kihberg, suggest that in rural areas safety belt users are approximately 50 percent less likely to be killed or seriously injured in vehicle crashes.[8]

The 1973 statistics released by the Washington Traffic Safety Commission revealed that safety belt users represented 29 percent of all vehicle occupants in the State, but only 8.3 percent of those killed.

The statistics also revealed that 13 non-users of safety belts were killed for every user, and 22 non-users were disabled for every 3 users. If safety belts had been worn by all occupants, 363 additional lives could have been saved.[9]

Governor Sherman W. Tribbitt of Delaware made the following statement at the 1973 National Safety Conference: "Of the 132 highway deaths in 1972, only one victim was wearing a seat belt. And in 1973, to date, none of the seventy-five victims of highway crashes was wearing seat belts or shoulder straps. Many of these deaths could have been prevented if the safety belts had been used."[10]

In the City of Brooklyn, Ohio there have been just twelve traffic fatalities since the mandatory safety belt legislation was passed in 1966. Not one of the twelve was wearing safety belts at the time of the accident.[11]

It is estimated that if every motorist in the United States had used the safety belt available to him, as many as one-half of the 55,000 motor vehicle occupants who died in 1972 would be alive today; the number of injuries would have been mitigated, and societal losses associated with highway crash deaths alone would be reduced by as much as $2 billion.[12] It is further estimated that even the very low percentage of belt systems being used results in saving about three thousand lives per year.[13]

Canadian Studies

The Canada Safety Council has long been firmly convinced that the use of safety belts is a major factor in the reduction of death and serious injuries in traffic accidents. However, their studies indicate that less than one-quarter of all car occupants wear their lap belts and

less than one-tenth wear their lap and shoulder belts. The Council estimates that the use of lap belts alone already saves 350 lives per year in Canada, and as many as 55 percent of the 4,500 fatalities in 1972 could have been prevented if all occupants had been wearing the combination lap and shoulder belt.[14]

At the conclusion of the 1974 Federal-Provincial Health Ministers' Conference, Federal Health Minister Lalonde said that wide-spread safety belt usage in each province could cut the number of traffic deaths by 700 - 800 a year and serious traffic injuries could be cut by 25,000 a year.[15]

The 1972 statistics released by the Ontario Safety League disclosed that 35,782 belted drivers were involved in automobile collisions compared with 200,742 unbelted drivers.[16] One out of every 895 belted drivers involved in these accidents was killed, whereas one out of every 447 unbelted drivers was killed. 42.8 percent of all people fatally injured in collisions were drivers and over half of them (55 percent) had safety belts in their vehicles but were not using them. 46.1 percent of all people non-fatally injured in collisions were drivers and the proportion not wearing safety belts was even higher at 63.2 percent.

The Australian Experience

The wealth of evidence collected from numerous experiments and studies illustrating the effectiveness of safety belts is confirmed by the actual experience in Australia.

During the first nine months of 1971, seat belt usage was compulsory in the State of Victoria. Similar legislation had not been introduced in the rest of Australia. Consequently, a suitable control group was available to evaluate the effectiveness of Victoria's

mandatory legislation.[17]

An analysis of the occupant fatalities and deaths, as shown in Table 1, points to this effectiveness. When compared with the same nine-month period for the previous year, there was a 17.7 percent drop in fatalities and a 14.8 percent drop in injuries. Similar reductions were not experienced in the rest of Australia. During the same period, non-occupant injuries in Victoria declined by 3 percent compared with a 10.6 percent increase in the rest of Australia.

Legislation was introduced in all other Australian States by early 1972. Table 1 indicates that while the figures for Victoria declined marginally during the first nine months of 1972, fatalities in the rest of Australia declined by 13.8 percent and injuries by 7.8 percent.

A study of the effects of legislation during 1972 was carried out in New South Wales, the largest state in Australia in terms of population and motor vehicles. The number of motor vehicle occupants killed in New South Wales during 1972 was 701 as compared to 870 (18.5 percent lower) in 1971. A fluctuation in the number of deaths from year to year is normal. Thus, one would question whether the difference between 1971 and 1972 statistics reflects a significant deviation from well-established trends. Since New South Wales did not have a control group to compare with, the Australian Traffic Research Unit developed a regression line representing vehicle occupant deaths against time for the years 1961 - 1971 (Figure 1). This regression line provides a prediction that the number of motor vehicle occupant deaths in 1972 could have been expected to be 939, with a 95 percent confidence interval of plus or minus 143, or between 796 and 1,082 deaths. This means that the observed number of vehicle occupants' deaths (701) in the first full year of the legislation

Table 1

OCCUPANT FATALITIES

(FIRST 9 MONTHS OF EACH YEAR)

		1970	1971	1972	1973
Victoria:	No.	564	464	450	451
	% Change		-17.7	-3.0	+0.2
Rest of Australia:	No.	1,426	1,429	1,232	1,327
	% Change		+0.2	-13.8	+7.7
TOTAL	No.	1,990	1,893	1,682	1,778
	% Change		-4.9	-11.1	+5.7

OCCUPANT INJURIES

(FIRST 9 MONTHS OF EACH YEAR)

		1970	1971	1972	1973
Victoria:	No.	14,620	12,454	11,840	11,291
	% Change		-14.8	-4.9	-4.6
Rest of Australia:	No.	39,980	40,395	37,252	41,437
	% Change		+1.0	-7.8	+11.2
TOTAL	No.	54,600	52,849	49,092	52,728
	% Change	3	-3.2	-7.1	+7.4

Source: "The Introduction of Compulsory Seat Belt Wearing Laws in Australia and their Effect." Road Safety Research Section, Australian Department of Transport.

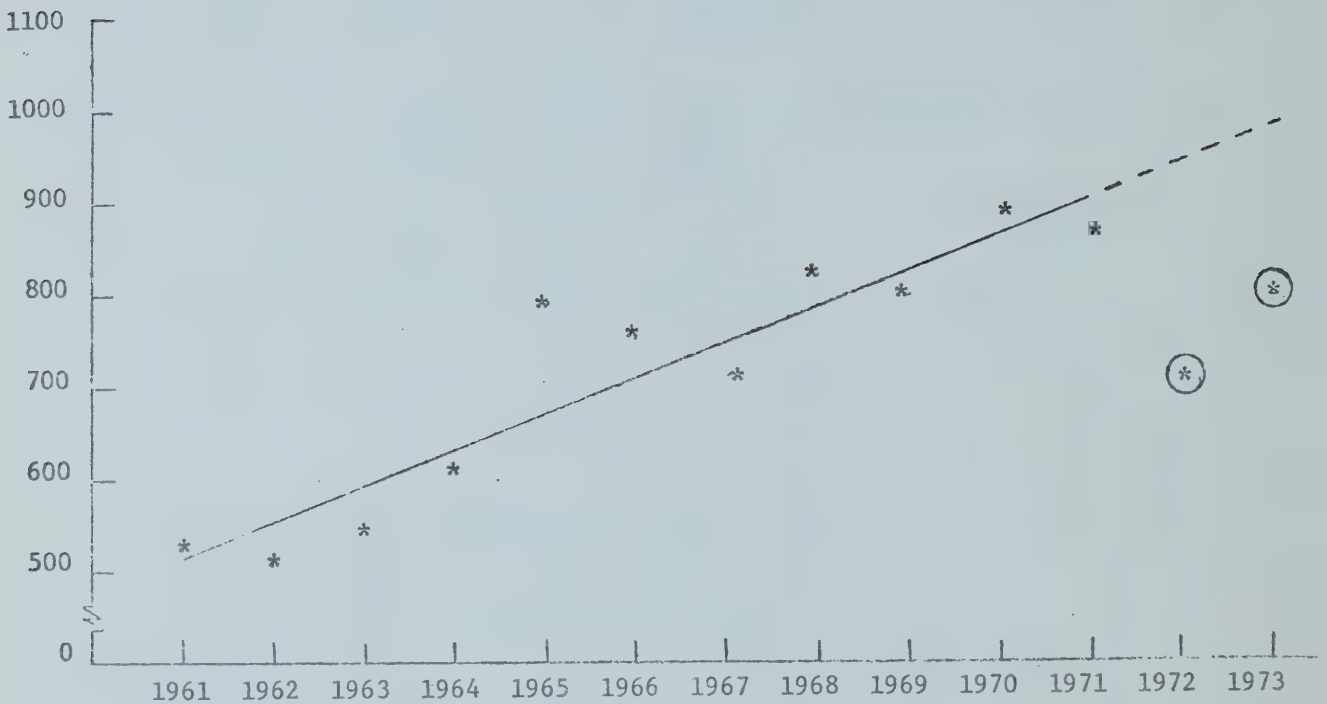

Figure 1: Fatalities, drivers and passengers, years 1961-1973, New South Wales, showing gradual upwards trend broken in 1972 and the start of a new, lower trend.

Source: "The Effect of Mandatory Seat Belt Use in New South Wales, Australia." Department of Motor Transport, New South Wales. Traffic Accident Research Unit.

was approximately 25 percent below the number which might have been predicted from the previous ten year trend. The observed figure was also from 12 - 35 percent below figures representing extremes of fluctuation from year to year at the 95 percent confidence level.

Other variables were examined in order to determine whether they could have affected the number of occupant fatalities. Trends over the same period were examined for the number in the total population, the total number of holders of driving licenses, annual registration of new motor vehicles, the total number of vehicle registrations on record and the annual consumption of gasoline (see Table 2).

All these variables appear to increase in an approximately linear relationship to time. It can be concluded that while occupant deaths dropped in 1972, not one of the other population or mobility statistics did so to an extent which could have affected occupant deaths.

It should be noted that fatalities and injuries of road users other than vehicle occupants did not show a corresponding decline, but in fact increased. This confirms the contention that vehicle occupants were being affected by a measure not operative so far as other road users are concerned.

Figure 1 shows the number of deaths (787) in New South Wales for 1973. The figures in Table 1 show that the number of vehicle occupants killed in all of Australia during the first nine months of 1973 increased by 5.7 percent over the same period in the previous year and the number of vehicle occupants injured increased by 7.4 percent. Clearly, while mobility continues to increase annually, the number of vehicle occupant deaths and injuries will have a tendency to rise year by year as well. But the rise should be along a new trend line, parallel to but

Table 2

MOTOR VEHICLE OCCUPANT DEATHS IN N.S.W. AND ASSOCIATED POPULATION VARIABLES FOR 1961-1972

Year	Population of N.S.W. (June 30)	Total Vehicles	Registration of New Vehicles (Year Ending June 30)	Driving Licenses on Issue	Consumption of Motor Spirit (Gallons x 1,000)	Vehicle Occupant Deaths
1961	3,917,013	1,024,519	124,179	1,305,910	441,540	524
1962	3,985,000	1,073,634	120,182	1,371,675	465,732	504
1963	4,047,700	1,112,868	144,001	1,414,071	498,861	544
1964	4,105,200	1,177,629	160,140	1,497,288	540,775	610
1965	4,172,400	1,257,815	172,632	1,571,701	581,900	784
1966	4,233,800	1,330,840	158,371	1,627,597	605,625	749
1967	4,292,900	1,401,674	162,226	1,717,161	634,588	706
1968	4,354,600	1,472,316	183,862	1,776,159	668,508	813
1969	4,434,100	1,562,270	190,209	1,841,580	712,117	794
1970	4,513,000	1,669,778	209,320	1,966,152	764,229	881
1971	4,589,556	1,767,009	211,429	2,059,617	801,064	860
1972	4,663,000	1,875,540	209,472	2,110,312	857,387	701

Source: "Compulsory Wearing of Seat Belts In New South Wales, Australia." Department of Motor Transport, New South Wales. Traffic Accident Research Unit.

considerably lower than the trend lines established from 1961 - 1971. This is illustrated in Figure 2 which shows that the actual numbers killed in Victoria and the rest of Australia during the first nine months of 1973, while larger than the corresponding 1972 figures, lie below the 95 percent prediction limits calculated for the linear trends.

Changes in the Pattern of Injury

The type of analyses on the previous pages can be complemented by examining changes in the severity and pattern of injuries sustained by vehicle occupants. This confirms the effect of safety belts in reducing the severity of injuries.

Throughout Australia the hospitalization of injured drivers is now about 34 percent below the pre-safety belt legislation rates and is about 24 percent lower for all motor vehicle occupants. The following examples illustrate this point.

Almost all severe spinal injuries in Victoria are treated at the Austin Hospital in Melbourne where the incidence and severity of spinal injuries caused by motor vehicle accidents is reported to have decreased by more than one-third. However, the admission of patients with spinal cord injuries from other causes has been increasing.

Before legislation was passed in New South Wales, more than 30 percent of all people involved in motor vehicle accidents were admitted to hospitals. This figure has now been reduced to 14 percent.

The number of patients admitted to Royal Melbourne Hospital because of eye injuries due to motor vehicle accidents has declined since introduction of the belt use law. Prior to 1971 the hospital averaged 16 such cases annually. In the last two years the average has been four cases per year.

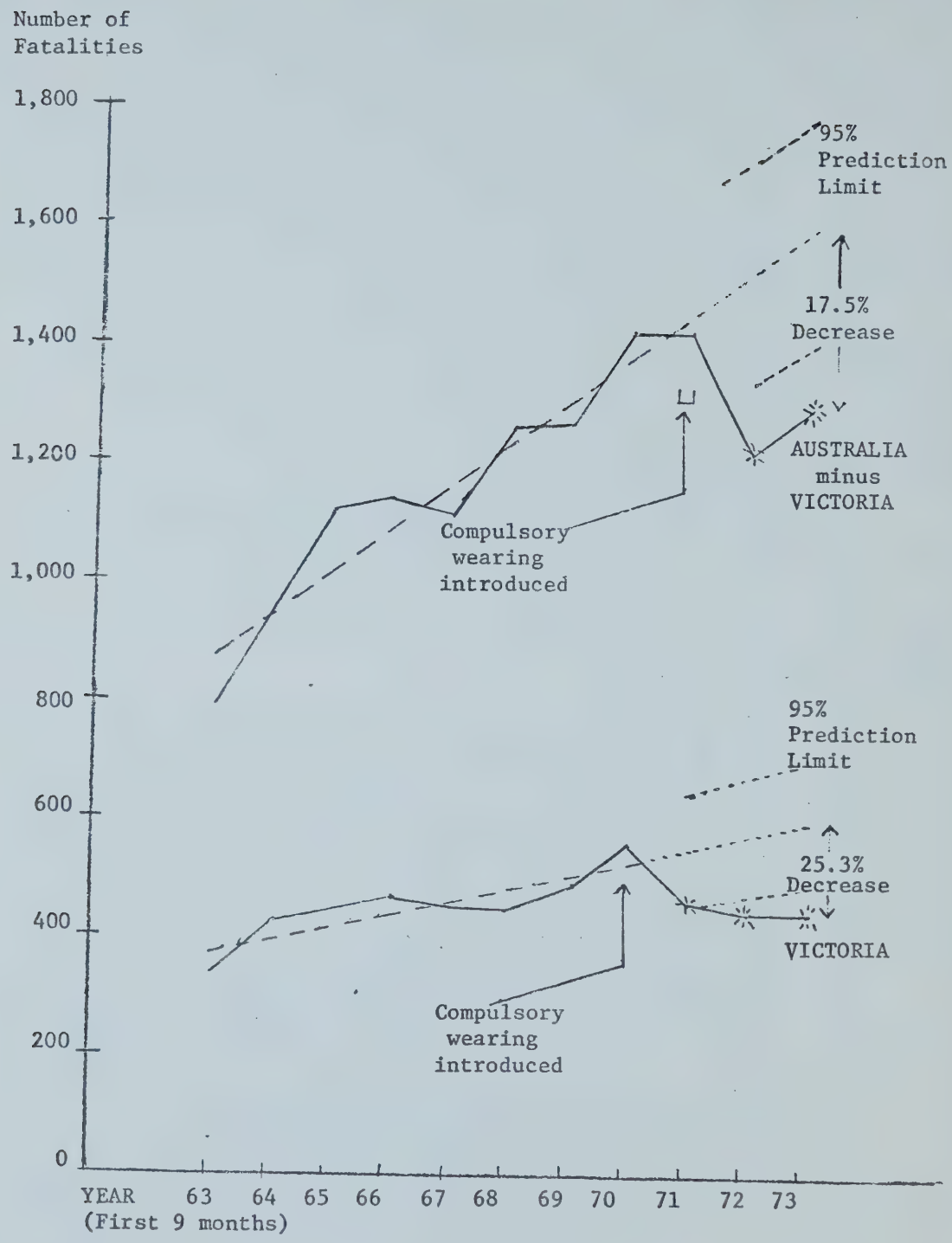

Figure 2: Vehicle Occupants Killed (first 9 months).

Source: "The Introduction of Compulsory Seat Belt Wearing Laws in Australia and their Effect." Road Safety Research Section, Australian Department of Transport.

There has been a 50 percent decline in the number of occupant victims treated for severe facial injuries.

There has been a 40 percent reduction in knee cap and hip injuries among accident victims since the law took effect.

The Royal Australasian College of Surgeons developed the following comparisons of certain injuries in the twelve-month periods before and after mandatory legislation was enacted:

1. Fatal accidents with fractured skull and brain damage have fallen by 30 percent. In non-fatal cases, fractured skull and brain damage have marginally increased, indicating that victims are surviving because head injuries are less severe.

2. Fatal accidents with fractured femurs have decreased from 22 percent to 15 percent. In non-fatal accidents the incidence of fractured femurs has risen two-fold, indicating that victims are surviving who otherwise might have died.

The New Zealand Experience

The wearing of safety belts by drivers and front seat passengers became compulsory under New Zealand traffic law on June 1, 1972. The only evaluation of the law to date,[18] a ten-month interim report based on limited data, produced these significant findings:

1. a levelling-off in the number of fatalities to front seat occupants at a time when fatalities to other road users were increasing substantially; for example, in the ten-month period there was a decrease in fatalities of 0.3 percent for drivers and front seat passengers, while other fatalities, including motor cyclists and pedestrians, increased 51 percent

2. a general reduction in the severity of injuries sustained by belted occupants

Table 3 clearly shows that the chances of being injured, either seriously or fatally, are higher when a belt is not used. There was three times the proportion of serious and fatal injuries when belts were not used than when they were used.

Table 3

COMPARISON OF SEVERITY OF INJURY

	BELT USED Percentage of Occupants Seriously or Fatally Injured	BELT NOT USED Percentage of Occupants Seriously or Fatally Injured
Driver	5%	13%
Passenger - Left Front	6%	26%
Passenger - Centre Front	--	23%
Rear Passenger	--	10%
TOTAL	5%	16%

Source: An Interim Evaluation of the Compulsory Seat Belt Law. Road Transport Division, Ministry of Transport, Wellington, New Zealand.

Table 4 illustrates that ejection rates, head injuries and the incidence of shock were much higher when safety belts weren't used. The incidence of multiple injuries was also higher.

One other significant finding reported in the evaluation was that from a total of 1,300 accidents, only twelve injuries were caused by safety belts and all of these were of a minor nature. On the other hand, more than two-thirds of drivers and front seat passengers fatally injured were not wearing their safety belts.

The major result proven by mandatory safety belt legislation in both Australia and New Zealand is that safety belts do work; they do reduce the chances of death and injury.

Table 4

CAUSES AND TYPES OF INJURY

Part of Car Causing Injury

	Ejected	Steering Wheel & Controls	Fascia	Roof, Doors and Seats	Wind Screen	Glass Cuts	Belt Itself	Loose Objects	Whip-lash & Other	Total
Belt Used No.	4	21	8	15	22	3	12	-	8	93
Belt Not Used No.	64	39	23	41	72	5	-	1	10	255
Belt Used %	4	23	9	16	23	3	13	-	9	100
Belt Not Used	25	15	9	16	28	2	-	1	4	100

Area of Body Injured

	Head	Neck	Arms	Legs	Shock	Total
Belt Used No.	44	11	7	21	21	136
Belt Not Used No.	147	11	21	41	75	353

Source: An Interim Evaluation of the Compulsory Seat Belt Law. Road Transport Division, Ministry of Transport, Wellington, New Zealand.

SOME PREVENTABLE COSTS OF MOTOR VEHICLE ACCIDENTS

Having illustrated the effectiveness of safety belts, it should be apparent that extensive usage and the resulting decrease in deaths and injuries would promote the public welfare by:

- less use of hospital beds; consequently, less need for increasing medical personnel and facilities and lower overall health care costs
- expectation of lower insurance costs and therefore a reduction in insurance premiums
- fewer dependent families to be supported by the welfare system due to death or serious injury to a patient
- fewer lost man-hours at work, less re-hiring and re-training expenses, and therefore lower business costs; less loss of wages and resulting loss of tax revenue to finance public activity
- less chance of inconvenience and expense of civil litigation following personal injury
- reduced costs to the taxpayer for court operation costs, ambulance expenses, inquest and coroners' expenditures, police time, and so on

The total personal injury costs associated with fatal and non-fatal motor vehicle accidents in the United States in 1971 was estimated to be about $34 billion.[19] This figure is based upon the 1971 national toll of 55,000 fatalities and 3,800,000 injuries. Highway fatalities accounted for nearly $11 billion of the total costs. If the estimated 10,000 persons who could be saved annually by nation-wide enactment of state safety belt use laws were totally uninjured, such laws would also save the United States society an estimated $2 billion per year.

The Canada Safety Council has conservatively estimated that in 1972 1,130,331 hospital days were accumulated by traffic accident victims in Canada at an average cost of $100 per bed-day.[20] It further estimated that the costs of doctors' visits, together with surgery, intensive care and other similar expenses add another $25 per bed-day. Out-patient treatment for an estimated 500,000 cases is reported to average $75 per case. The total medical cost associated with these traffic accidents approximates $178.6 million. Not included in this cost analysis are the costs associated with several other components: property damage, legal and court fees, wage losses, loss of vehicle use and accompanying expenses, insurance administration costs, time and money losses to relatives and friends, employer losses, loss of community services, pain and suffering, loss of ability to perform home and family duties, and loss of assets and goods of unique value.

The Ontario Safety League estimates that if the costs associated with all of these factors were included in the traffic accidents that took place in Ontario in 1972, the 1,934 fatalities and 189,494 injuries cost Ontario a staggering $671 million.[21]

THE USAGE OF SAFETY BELTS

Although the installation of safety belts has been mandatory for all cars manufactured since January 1971, they have been available as optional features for many years. It is estimated that over 90 percent of all cars in North America are now equipped with safety belts of some kind in the front seating positions. Two-thirds of these positions have shoulder belts and nearly 70 percent have either lap or shoulder belts available in the rear seat.[22] However, the usage rate of lap and shoulder belts is dismally low, probably even lower than that actually reported.

According to surveys conducted throughout the United States, only 20 percent of the population wear lap belts and 5 percent wear lap and shoulder belts when they are available.[23] These rates vary from state to state; for example, in 1972 more than 75 percent of the 39,000 vehicles involved in Idaho crashes were equipped with lap belts. Yet, only 6 percent of the occupants were using them.[24]

The United States National Safety Council reviewed all the accidents that occurred during the July 4th weekend in 1973 and discovered that not one of the 422 motorists killed had been wearing safety belts.[25]

The situation is much the same in Canada. A recent survey by the Alberta Safety Council revealed that between 17 - 20 percent of the province's drivers use their safety belts on a regular basis. This average rises to about 27 percent on highways.[26]

The Ontario Department of Transportation and Communications

estimates that 10 - 20 percent of Ontario's drivers wear their safety belts when available.[27]

The Saskatchewan Safety Council and the Saskatchewan Department of Highways and Transportation report that just 4 - 6 percent of Saskatchewan's drivers wear their safety belts.[28]

Surveys conducted on New Brunswick's highways during 1971 and 1972 observed that just 8.8 percent of all travellers wear their safety belts.[29]

A study conducted by the Federal Ministry of Transport estimates that on the average just 15 percent of all Canadian drivers and motor vehicle passengers wear their safety harnesses.[30]

The usage rates are just as discouraging in other countries; for example, Belgium, 6 percent; Denmark, 15 percent; Great Britain, 7 - 10 percent; Sweden, 14 percent; and Switzerland, 10 percent.[31]

Several extensive surveys were conducted in Australia to determine the extent of safety belt usage both before and after the mandatory safety belt legislation was introduced.[32]

In New South Wales (1971) 25 percent of all motor vehicle occupants wore their safety belts on a regular basis, but 50 percent indicated that they rarely or never wore them. Eighteen months after the legislation was passed, 75 percent reported <u>always</u> wearing their safety belt and only 9 percent reported wearing them rarely or never. Among urban commuter traffic, the wearing rate rose from the comparatively high 25 percent to almost 100 percent.[33]

Throughout Australia the usage rate jumped from 20 percent before legislation to 76 percent very soon afterwards. This is equivalent to an almost 100 percent wearing rate for those vehicles with safety belts

fitted.[34]

In New Zealand 33 percent of rural drivers were wearing the safety belts fitted in their vehicles in 1971. This increased to 50 percent just prior to the mandatory legislation and 90 percent when the law was introduced. Equivalent figures for the urban areas were approximately 30, 33 and 85 percent.[35]

Buckle-up. Why Not?

There are plenty of excuses for not wearing safety belts. When considered seriously, these excuses just don't hold water. The following are a few examples.

"Safety belts are not needed on short trips." FALSE. Three out of every four traffic deaths occur within twenty-five miles of home.[36]

"There is no need to wear belts at slow speeds." FALSE. More than one-half of all traffic accidents involving either injury or death occur at speeds less than 30 miles per hour.[37]

"The safety belt is of no benefit to the driver who could avert the impact by pressing the steering wheel." FALSE. At less than 20 miles per hour the forces in play are already equal to six times the body weight. The average driver could not begin to oppose even this pressure.[38]

"I'm a good driver, so I don't need safety belts." FALSE. Even the best driver can make an occasional mistake. And remember, many collisions involve two vehicles, so how can you be sure that the other driver won't make a mistake? It's human nature to think that collisions happen only to the other guy. That's what everybody thinks, until it happens to them.

"It's my own life I'm risking." FALSE. Conveniently overlooked is each driver's responsibility to other road users (motorists,

bicyclists and pedestrians) as well as his responsibility to the Canadian taxpayer.

"I don't want to be trapped in my car should it catch fire or submerge in water. I'll take my chances on being thrown clear." Statistics do not substantiate this statement. Numerous studies have shown that less than 1 percent of all injury-producing accidents involve fire or submersion.[39] If either fire or submersion should occur, the chances of getting out of an automobile are much greater if the occupant is wearing a safety belt. He is far more likely to be uninjured and conscious and thus able to help himself. Studies also show that ejection is the greatest single source of death in motor vehicle accidents while persons who are retained within their vehicles are five to thirty times less likely to be killed than those ejected.[40]

"Safety belts encourage carelessness." FALSE. Psychiatric studies disclose that the use of safety belts indicates that the user is more aware of driving carefully. A Cornell research team found no evidence that safety belt wearers drive any faster than anyone else.[41]

"Safety belts can hurt you." FALSE. Injuries caused by safety belt usage have been documented but are slight in comparison with the injuries that would have been sustained if the belts had not been worn. One cannot expect to escape entirely uninjured if involved in a high speed accident. But the point is, would you rather have a skull fracture or a sore shoulder?

"Safety belts are dangerous to pregnant women and their unborn babies." FALSE. A study of 441 pregnant victims of severe automobile accidents revealed no evidence that safety harnesses increased the mortality rate of either mother of fetus. Of unbelted pregnant women

ejected during accidents, 33 percent were killed and 40 percent were seriously injured. Of pregnant women who remained in the car, only 5 percent were killed and 11 percent seriously injured. And the greatest single cause of fetal death in motor vehicle accidents is death of the mother.[42]

It has been proven again and again that safety belts, when being used, give a far better chance of escaping death or injury in a collision.

APPROACHES TO INFLUENCING VOLUNTARY USAGE OF SAFETY BELTS

Two main methods have been tried in various countries to increase the wearing of safety belts. These methods are mechanical warning devices and public education.

Mechanical Devices

The United States Federal Motor Vehicle Safety Standard Number 208 requires that a buzzer and light system be equipped on all vehicles manufactured for use after January 1, 1972 (July 1, 1972 under the Motor Vehicle Safety Act in Canada) and a safety belt interlock system on all vehicles manufactured after August 15, 1973. The Canadian Motor Vehicle Safety Standards requires that the three-point system with inertia reel (one buckle since the lap and shoulder portions are permanently connected) must be used on all vehicles manufactured after January 1, 1974.

Car dealers and car owners have found ways to by-pass the warning devices. B. W. Bragg, in a study for the Road and Motor Vehicle Traffic Safety Branch of the Ministry of Transport,[43] found that the warning devices had been disconnected in approximately 50 percent of all cars so equipped.

A study by Robertson and Hadden[44] disclosed that 18 percent of drivers with the warning devices equipped in their vehicles wore safety belts. However, 16 percent of drivers in an equal number of vehicles wore their safety belts even though their vehicles were not equipped with warning devices.

The interlock system made mandatory in the United States in August 1973 will not allow a motor vehicle to start if the safety belts are not fastened. The United States eased this rule during this past summer when the House of Representatives voted overwhelmingly to make optional the safety belt interlock system. The system will disappear because Congressmen told the House that their constituents are fed up with the mechanical device.[45]

Public Education Campaigns

It has been suggested that a person does not wear a safety belt because he is ignorant of its safety value. Therefore, if you inform and educate him of the facts, his behaviour will change accordingly. Efforts to persuade people to use safety belts through public education have taken a variety of forms, including advertising campaigns, public information programs, use instruction as part of driver education programs, and so on. To date, none of these efforts has produced any significant increases in safety belt usage.

In the United States the media, especially radio and television, have carried safety belt messages to an estimated 96 percent of all licensed drivers in the country. Attitude surveys show that the majority of these people believe that safety belts make a contribution to safety.[46] Apparently, the campaigns have been successful in creating a favourable image for belts, but they have been considerably less successful in actually getting people to buckle up.

During 1968 and 1969 the United States National Safety Council conducted a nation-wide, eighteen-month campaign that cost approximately $51 million. The Council later concluded that the campaign had virtually no effect on safety belt usage.[46]

Surveys conducted in various European countries to measure the impact of publicity campaigns (1.5 million pounds was spent in the United Kingdom during the last two years) on the wearing of safety belts have shown no significant increases in the percentage of actual wearers after such campaigns. However, there have been distinct improvements in the estimated potential value of safety belts.[48] In France, for example, 79 percent of the people are convinced of the safety value of safety belts; yet, only 17 percent wear them on a regular basis while 61 percent have never worn them.[49]

Similar results have been documented in Australia. In 1970 60 percent of the people who never wore seat belts rated them as a very important safety device.[50] Yet, given the wide-spread belief, the wearing rate was fairly low.

Thus, it should be apparent that an individual's belief in safety belts is no guarantee that he will wear one himself. This means that continued propaganda in its present form will produce little or no change in wearing rates. The solution can no longer be seen as one of educating people on the merits of safety belts. They know by now.

Why does a person not wear a safety belt despite his belief in its safety? There could be several reasons. He may perceive that the costs associated with wearing safety belts outweigh the benefits to be gained. It is all very well for a person to believe in the value of safety belts in the event of an accident; but, if he perceives that the actual risk of an accident is small, then knowledge of this benefit will not be a powerful motivating force. The relatively low speeds and short trips characteristic of normal urban driving are just not associated with accidents and serious injury. On the other hand, the costs appear very

concrete: inconvenient, uncomfortable, costly to install, claustrophobic, and so on.

Another reason mass media campaigns could be ineffective to a certain extent is an individual's tendency to seek out and attend to information that will reinforce his existing beliefs and attitudes and avoid opposing information in an attempt to minimize the discomfort of "cognitive dissonance" or conflict. This means that the messages probably will not reach the very audience for whom they were intended and often the case is simply one of preaching to the converted.

To be effective, propaganda should be designed to appeal to the specific audience to whom it is directed. The "general public" comprises a large collection of heterogeneous groups of people with a wide range of attitudes, values and interests. Thus, propaganda directed at the general public will have no appeal for certain sections of the population.

What is needed, then, is a different approach to bring about a change in behaviour. If safety belts are to continue as occupant restraints, and as long as people continue to perceive the costs of usage outweighing the benefits to be gained, legislation for compulsory usage may be the only way to markedly increase the wearing rate.[51]

A THIRD METHOD--SAFETY BELT USAGE LAWS

When safety belt usage legislation was enacted in the Australian State of Victoria on December 22, 1970, it was a unique piece of road safety legislation not only for Australia for for most of the world. (Mandatory legislation was enacted in the U.S. City of Brooklyn, Ohio on March 28, 1966.) The basic requirement was:

> A person shall not be seated in a motor vehicle, that is in motion, in a seat for which a safety belt is provided unless he is wearing the safety belt and it is properly adjusted and securely fastened.

Similar legislation was introduced in all Australian States and Territories by January 1, 1972. Other countries and places have since followed Australia's lead. Included are New Zealand (June 1972); France (July 1973); Puerto Rico (January 1974); Czechoslovakia (January 1974) Israel (January 1974) and Spain (January 1974).

In 1970-71 transport safety officials in the United States were saying the idea of mandatory usage of safety belts could not be promoted successfully in the country. Since Australia mandated safety belt usage, the United States reversed its stance and its Congress authorized the Secretary of Transportation to conduct a three-year program for making incentive grants available to states that enact safety belt use laws during the fiscal years 1974-76.

During 1973 safety belt use laws were proposed in twenty-five State legislatures--Arizona, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Kentucky, Louisiana, Massachusetts,

Michigan, Minnesota, Mississippi, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Virginia, Washington, West Virginia, and Wisconsin--and passed by three bodies: the Maryland and New York Senates and the New Jersey Assembly.[52]

Some states already require the use of safety belts in certain vehicles. California requires drivers and passengers engaged in driver training to use belts in driver education vehicles. Massachusetts, New York and Minnesota make it illegal for the driver of a school bus to operate the vehicle without using safety belts. Rhode Island requires drivers of buses, trolleys or authorized emergency vehicles to use available safety belts. The Bureau of Motor Carrier requires by regulation the drivers of trucks and buses in interstate commerce to fasten safety belts.[53]

In the United Kingdom mandatory safety belt legislation is awaiting second reading in Parliament. The European Conference of Ministers of Transport reports that the following countries are considering mandatory use laws: Belgium, Luxembourg, the Netherlands, Portugal, Switzerland, the Scandinavian Countries and West Germany.[54]

Here in Alberta, MLA George Ho Lem introduced a private member's bill in the last session of Legislature which would have amended the Highway Traffic Act making the use of safety belts mandatory throughout Alberta. He intends to pursue the matter further.[55]

Acceptance and Enforcement of Usage Laws

It would be very difficult to make a comprehensive list of the many groups--safety councils, automobile associations, automobile manufacturers, medical associations, police associations, law enforcement personnel, bussiness corporations, business executives, and private

citizens--that endorse safety belt usage laws. If a high level of voluntary compliance with a usage law can be established, the need for stringent enforcement measures will be reduced.

There was no significant resistance to the legislation in Australia. Public and mass media opinions throughout the entire country were in support of the legislation.[56] There was also a considerable degree of voluntary retrospective fitting of safety belts to older cars. Because of the regulation, approximately one-third of all passenger cars on the New South Wales motor vehicle register in 1972 had safety belts fitted in front as original equipment. However, over 500,000 used cars have been retro-fitted since the legislation was introduced and surveys (in May 1972) in the large metro areas have revealed that 76 percent of passenger cars, panel vans and utility trucks had safety belts fitted to at least the front outer seating positions.[57]

A 1973 survey by the Traffic Accident Research Unit found 80 percent of the Australian people in favour of the legislation, 16 percent opposed to it and 4 percent were undecided. A Gallup poll in 1970 found that about 50 percent of all Australian citizens were in favour of such legislation at that time.[58]

Legislation has swung the balance in Australia and most people now feel that the benefits of safety belt usage outweigh the costs.[59] But the costs have not really changed, since safety belts themselves remain basically the same in design. Thus, the benefits must have taken on added strength. This would appear to be related to factors such as:

1. increasing awareness of and reinforcement of beliefs in the safety value of safety belts
2. adoption of changed patterns of behaviour brought about by the introduction of the law
3. avoidance of social sanctions and the feeling of being

different have become other benefits

4. avoidance of a likely fine ($20 in Australian currency) has become an easily perceived benefit of safety belt use

There is one other important factor that can be taken into consideration. It is felt that the majority of the population are, by nature, law abiding. There is a long-standing tradition that any misgivings that people may have about a proposed law are put aside after the law is enacted and becomes effective. This was displayed in Australia. The minority of Australians who opposed the enactment of mandatory safety belt usage ceased its opposition after the law became effective.

In an Ontario study by Bragg, 82 percent of a random sample of drivers said they would obey a law requiring the wearing of lap and shoulder belts and 91 percent said they would obey such a law if it applied to lap belts only.[60] Bragg suggested that the compliance figure could rise to virtually 100 percent if there were some form of external indication of use such as an external light that would come on if the belt were not buckled.

In another Ontario study, 63.4 percent of the people polled stated that motorists should be forced to wear safety belts even though only 23 percent were wearing their belts when they answered the questions.[61]

Infringement on Individual Rights

One of the major arguments voiced against mandatory safety belt legislation is that it infringes on an individual's rights and invades his privacy. This argument is completely false. There is in the law no sanction for self-destruction and certainly there is no right on the part of anyone to use the public highways for risking or courting or seeking such self-destruction. Protection of the safety of all users

of the highway, even against the consequences of their own actions, is a legitimate use of legislative power.

The weakness of this argument is further illustrated by a 1972 ruling of the Federal District Court of Massachusetts concerning the usage of motor cycle helmets.

> " . . . . The public has an interest in minimizing the resources directly involved [in accidents] . . . . From the moment of the injury, society picks the person off the highway; delivers him to a municipal hospital and municipal doctors; provides him with unemployment compensation if, after recovery, he cannot replace his lost job; and, if the injury causes permanent disability, may assume the responsibility for his and his family's subsistence. We do not understand a state of mind that permits anyone to think that only he himself is concerned."[62]

Society accepts the fact that certain people must have attained a specified level of training in their profession before they have freedom to practice it. We accept that building plans must be checked with a municipality before we have the freedom to build on a piece of land we own. We accept that a driver should at least pass a driving test before being turned loose on our roads with the freedom to drive where he will. Why, then, should not the tax-paying public be able to demand freedom from needless costs and expenses caused by irresponsible individuals? Surely those who so strongly demand the freedom to commit suicide could do so in a manner that does not involve other innocent members of the public.

The point is, it is simply untrue to say the non-wearing of a safety belt is an individual's right affecting no one but himself. Anyone who thinks so must be a very lonely person indeed.

The Convenience of Safety Belts

The convenience of safety belts is of vital importance since it is a necessary prerequisite of widespread usage, law or no law.

Currently available belt systems, including those in 1974 model vehicles, are still deficient in terms of comfort; and many other respects, such as webbing and buckle design, are in need of up-grading. A report on safety belts by an American Consumers' Association suggested that many of them were designed and installed not to be worn but to pass a federal standard. Most of the belts tested were so uncomfortable that even the most safety conscious driver may well refuse to wear them.

Improvements in safety belt design can make wearing them more comfortable and convenient and thus encourage their use. One of the major conclusions stated by Bragg in a study of safety belt motivation is that the type of belt significantly influences usage and there is a much greater probability that lap and shoulder belts would be worn if they were permanently connected and retractable.[63]

This reiterates the study by Volvo[64] which clearly proves that the three-point belt combined with automatic retractors is more effective than any other type because of ease of adjustment and avoidance of tangling.

Not only must safety belts be convenient to be worn, but they must be worn correctly in order to gain advantage of their full potential and to avoid unnecessary injury. A survey conducted in Australia in May 1973 showed that many people do not wear their safety belts correctly.[65] An assessment was made of the correctness of adjustment where the belt was buckled and showed the following:

	Number	%
Correct	433	11
Only buckle position incorrect	371	10
Loose only	709	18
Twisted only	60	2
Twisted and buckle position incorrect	64	2

	Number	%
Twisted and loose	256	7
Loose and buckle position incorrect	1,335	34
Loose, twisted and buckle position incorrect	633	16
	3,861	100

This indicates a need to ensure that belts are worn correctly. It is generally agreed that many of the problems associated with improper wearing and with complaints regarding inconvenience could be solved largely by up-grading the correct buckle location and using properly designed retractors. In the meantime, existing safety belt systems still require an effort on the part of the wearer to ensure their correct adjustment. Consequently, programs should be developed that will illustrate and encourage the correct method of wearing safety belts.

AN ALTERNATIVE TO THE SAFETY BELT

The current major alternative to the safety belt is the air bag. This type of restraint is favoured by some groups, such as Nader's Raiders and the Center for Auto Safety in the United States mainly because it requires no action on the part of the vehicle occupant.

Air bags have been demonstrated to give better protection than the belt in high speed frontal collisions.[66] However, their effectiveness has not been shown in all kinds of crashes, especially roll-overs, broad-side accidents, rear-end collisions and "second collisions" which occur after the initial impact. Safety belts, on the other hand, can and do prevent or reduce the force of collisions in crashes from the side or rear; it is these types of crashes that slam unbelted passengers and drivers into each other or the interior of the vehicle and cause slightly more than 50 percent of all traffic injuries.[67] The safety belt is also much more effective in preventing ejection, the greatest single source of death in traffic accidents.

A study of 105 severe and fatal accidents in the United Kingdom reiterates the above conclusion that safety belts are superior to air bags because they provide protection in more types of collisions.[68] The air bag provides the same protection as the lap-shoulder belt only when used in combination with the lap belt. This negates its principal advantage of involuntary action on the part of the occupant.

The United States Department of Transportation estimates that the costs of air bags that would have been required on cars manufactured

after August 15, 1976 by the Federal Motor Vehicle Safety Standard 208 (which has since been repealed) would have been $370 per vehicle for front and rear seats, not including the cost of safety belts.[69] The American Safety Belt Council estimates the cost of airbags (for the front seat only) is now $200 to $225 more than that of safety belts.[70] Neither of these estimates includes the costs to reset the air bags once they have been released.

One other important factor must be considered. Safety belts are available in approximately 80 - 90 percent of all passenger cars in North America.[71] If one considers the average useful life of an automobile to be about 8 - 10 years, then passive restraints would become available only on a gradual basis and will not achieve the same level of availability of safety belts until the early or mid-1980s.

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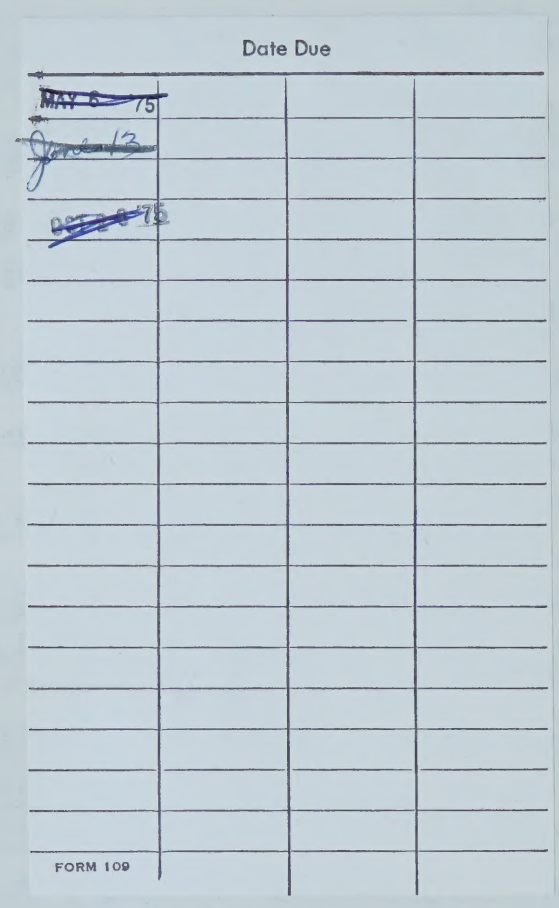
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